My Research

My research is driven by the desire to benefit the world and our future society. I have the privilege to work at the university and with a strong connection to industry, a possibility that I am grateful for. I want my research to be theoretically fascinating, practically stimulating and personnally engaging!

I am a researcher at the Engineering Faculty (LTH) at Lund University, Sweden and my research mainly relates to four of UN's global sustainability goals:

- Good health and wellbeing (3): tomorrow's surgical reports will be completely different from the textual paperbased reports that the hospitals are using today. In my research we focus on transforming the written reports to films with 3D-images in high resolution.
- Quality Education (4): Universities' value proposition to society is calling for a change. My research focuses on the importance of including cross-disciplinarity, leadership, entrepreneurial mindset, and collaborative pedagogy.
- Industriy Innovation and Infrastructur (9) / Responsible Consumtion and Production (12): Today's technical revolution implies new possibilities for custom made production in the future. The novel system architecture for Smart industry and related international industry standards are examples of what my research is focused on.

My Research: Surgeon's perspective

Surgeon's Perspective: Today's surgical reports consists of a written textual presentation which only the surgeon and the corresponding core-team can understand. One goal is to improve tomorrow's surgical reports by replacing it with a film with 3D-images in high resolution. In this way, the report will be more complete and understandable for a larger audience. In addition, they can serve as a learning plattform useful for e.g. students in medicine, and practicing surgeons preparing for a similar surgical operation. Robotics is needed when collecting the film material and 3D-images, in order to track the precise perspective of the surgeon. *Our vision is to provide the hospitals with modern surgical reports, which also facilitates for improved learning in surgical operations and health care.*

Ensure healthy lives and promote well-being for all at all ages

My Research: Mind Methodology

Mind Methodology: In a global context, education is seen as a main driving force for societal development, and the pen as the best tool for shaping its future. This also applies to engineering and STEM education. However, traditional pedagogical approaches in teaching and learning are centered around theory and practice “to know how to do engineering and apply technology”. The mindset part, “to become an engineer and belong in the tech community”, and ”to feel how you can create value for society” is too often left out. The proposed new pedagogical methodology, called Mind Methodology, includes game-based and student-centered activities related to mindset and personal development of the students. *Our vision for this novel methodology is to enhance and broaden traditional engineering education and hence to increase quality in education.*

Ensure healthy lives and promote well-being for all at all ages

My Research: Strategies and Standards for Smart Swedish Industry (4S)

Industry, Innovation and Infrastructure: In order to realise the vision of Smart industry (Industry 4.0 / Smart Manufacturing) , collaboration, in two forms, is needed. First, between the technical applications involved in the value-chains that a product is related to which requires international standards that the technical solutions can be based on. Second, collaboration between people, at national and international level, in order to develop these standards. The 4S-project aims at igniting the Swedish engagement, and enable Swedish industry related research results to become international standards. The project aims at intertwining, on one hand the Swedish industry research projects related to Smart industry, and on the other hand the Swedish standardization organizations with their channels to the international arena. This collaboration and joint effort is needed in order to generate a Swedish engagement and take an international position as a leading nationality in the area of Smart Industry.

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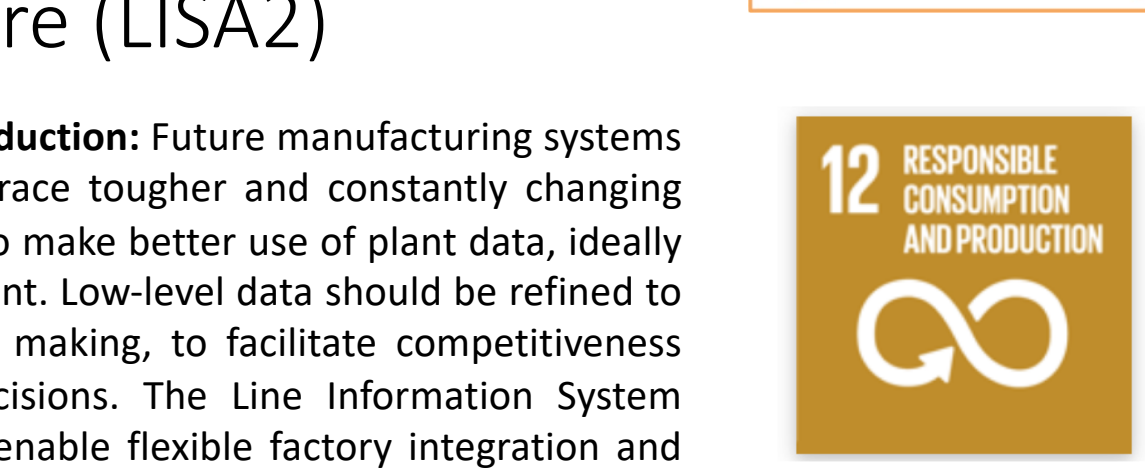
My Research: Line Information System Architecture (LISA2)

LISA2.

Responsible Consumption and Production: Future manufacturing systems need to be more flexible, to embrace tougher and constantly changing market demands. They also need to make better use of plant data, ideally utilizing all data from the entire plant. Low-level data should be refined to real-time information for decision making, to facilitate competitiveness through informed and timely decisions. The Line Information System Architecture, LISA, is designed to enable flexible factory integration and data utilization. The contribution is a new information system architecture (LISA), that enables flexibility and scalability. The architecture is event-based, has formalized transformation patterns, and uses stream-based aggregation and prototype-oriented information models.



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